

1966 OPERATING SUMMARY

MIDLAND

water pollution control plant

ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

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ONTARIO WATER RESOURCES COMMISSION
OFFICE OF THE GENERAL MANAGER

Members of the Midland Local Advisory Committee,
Town of Midland.

Gentlemen:

We are pleased to submit to you the 1966 Operating Summary for the
Midland Water Pollution Control Plant, OWRC Project No. 63-S-146.

It is hoped that our joint participation in efforts to combat water pollution
will have even more success in the coming year.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly".

D. S. Caverly,
General Manager.

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NOV. 23 1967

ONTARIO WATER
RESOURCES COMMISSION



ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET
TORONTO 5

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J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am happy to present you with the 1966 Operating Summary for the Midland Water Pollution Control Plant, OWRC Project No. 63-S-146.

The report offers a concise summary of operating data for the year and comparisons with previous years where these are applicable and significant.

Yours very truly,

A handwritten signature in cursive script, appearing to read "B. C. Palmer".

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary contains complete information on the management of the project during 1966. It contains a concise review of the year's plant operation, significant financial details, and a visual presentation in graphs and charts of technical performance.

The information will be of value to interested parties in assessing the adequacy of the project at this time and its ability to meet future requirements.

The report is the result of co-operation by several groups within the Division of Plant Operations. These include the statistics section and the technical publications section. The Division of Finance and the draughting section of the Division of Sanitary Engineering were also closely associated with its publication.

The Regional Operations Engineer, however, has had the primary responsibility for the content, and will be happy to answer any questions regarding it.

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MIDLAND
water pollution control plant

operated for

THE TOWN OF MIDLAND

by the

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Assistant Director: C. W. Perry
Regional Supervisor: D. A. McTavish
Operations Engineer: R. Kauppinen

801 Bay Street Toronto 5

'66 REVIEW

This was the first full year of operation for the Midland Water Pollution Control Plant.

The total operating cost of the project was \$20,703.17 or \$56.29 per million gallons treated. Payroll, power and sundry which includes sludge haulage accounted for the largest portion (78.2%) of the total operating cost.

A total of 367.78 million gallons was treated, or an average of 1.01 million gallons per day compared to the dry weather design flow of 1.25 mgd.

The average BOD and SS removals for the year were 58 percent and 57 percent, respectively, which is satisfactory for primary treatment.

PROJECT COSTS

NET CAPITAL COST (Estimated)	\$822,029.32
DEDUCT - Advances from C. M. H. C.	<u>541,000.00</u>
Long Term Debt to OWRC	<u>\$281,029.32</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	\$ <u>10,815.36</u>
Net Operating	\$ 20,703.17
Debt Retirement	5,617.00
Reserve	5,841.74
Interest Charged	20,869.60
 TOTAL	 \$ <u>53,031.51</u>

RESERVE ACCOUNT

Balance at January 1, 1966	\$ 5,008.26
Deposited by Municipality	5,841.74
Interest Earned	<u>404.39</u>
	\$ 11,254.39
Less Expenditures	<u>-</u>
Balance at December 31, 1966	\$ <u>11,254.39</u>

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	1135.56	797.94		33.13	240.77		33.89			13.11	16.72
FEB	1618.69	730.90		310.07	186.77		38.64			352.31	
MARCH	1430.71	836.57		170.47	169.91		82.83	57.47	28.00	85.46	
APRIL	2048.00	1213.77		159.31	178.67		75.93	154.45		265.87	
MAY	1319.20	839.69		92.77	149.89		78.12		17.77	120.60	20.36
JUNE	1431.64	883.15		102.64	150.37		139.59			156.39	
JULY	2966.48	781.76	295.28	43.65	164.53	1029.00	197.88	134.40		319.98	
AUG	1410.03	816.55	234.27	36.06	155.07		140.03			28.05	
SEPT	1848.24	1313.85	85.32	40.20	168.68		75.81		12.04	152.34	
OCT	1789.99	836.79		40.37	186.99				10.92	714.92	
NOV	2001.23	831.96		34.05	167.05		232.60	20.09	521.71	193.77	
DEC	1703.40	905.40		59.23	164.94		95.61	1.01	23.31	284.74	169.16
TOTAL	20703.17	10788.33	614.87	1121.95	2084.14	1029.00	1189.93	367.42	613.75	2687.54	206.24

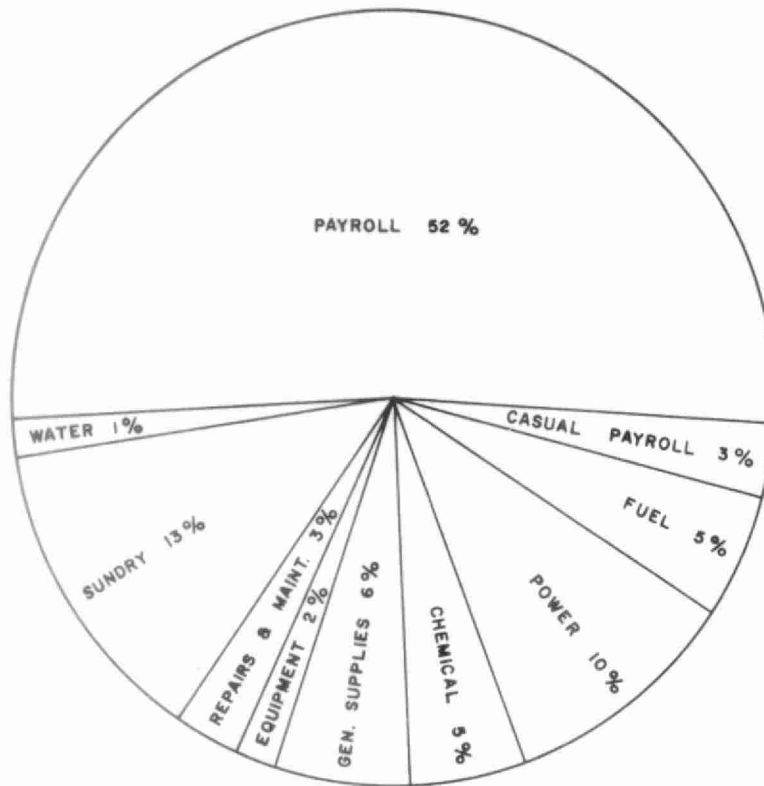
* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$1316.40

YEARLY OPERATING COSTS

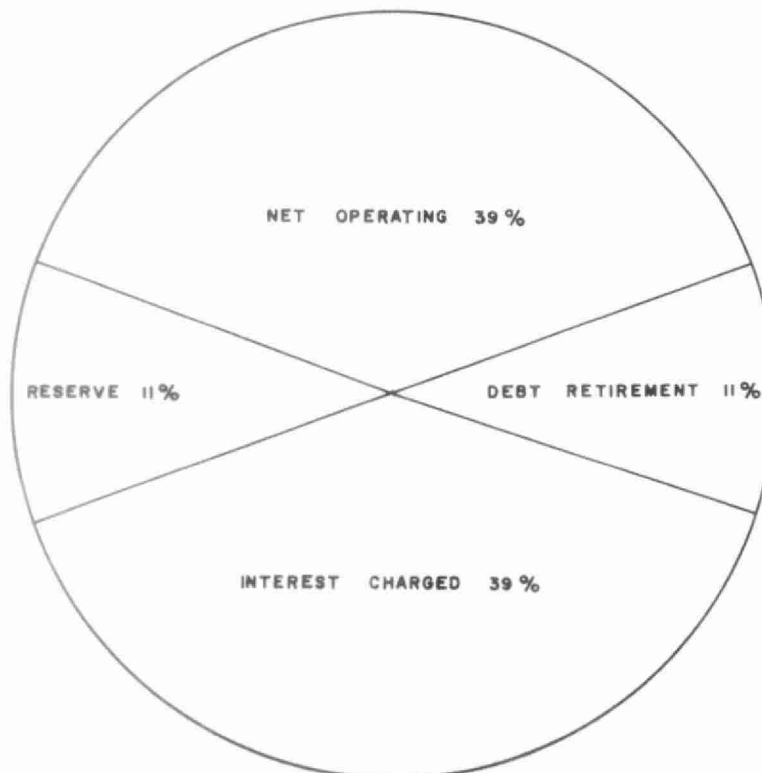
YEAR	M.G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER MILLION GALLONS	COST PER L.B. OF BOD REMOVED
1966	367.78	\$20703.17	\$8.07	\$56.29	7 CENTS

* BASED ON ANNUAL POPULATION ESTIMATE AND 3.9 PERSONS PER FAMILY

1966 OPERATING COSTS



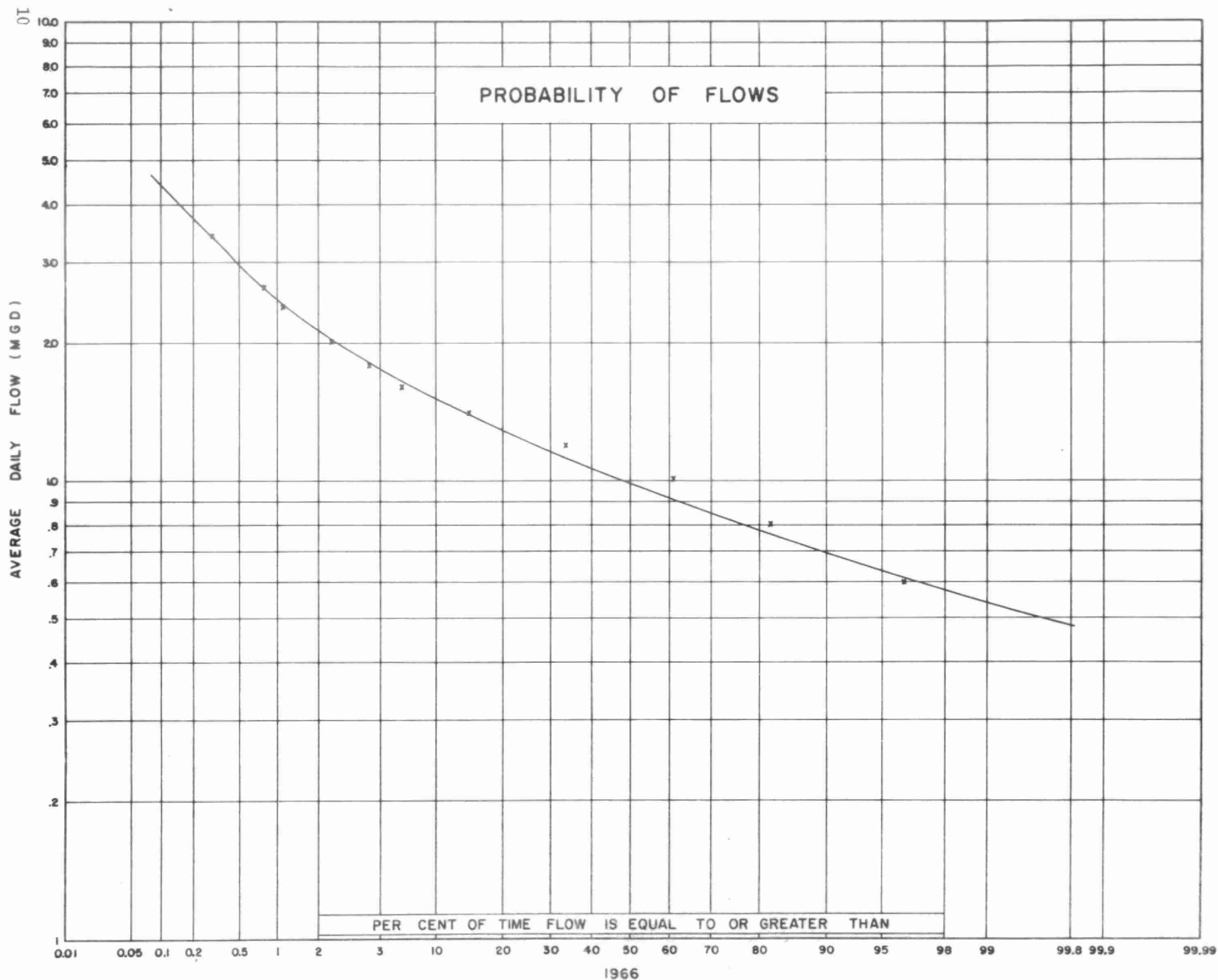
TOTAL ANNUAL COST

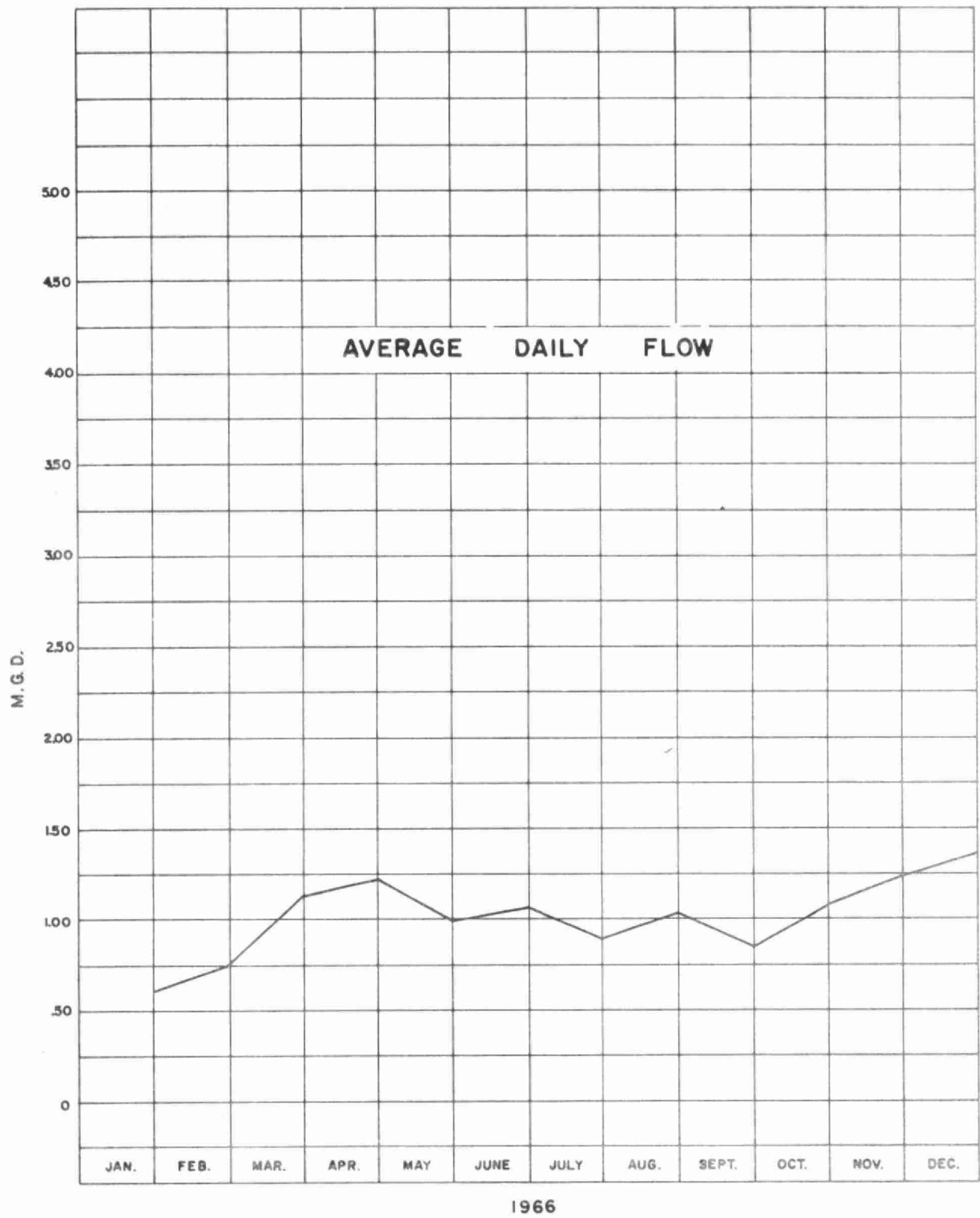


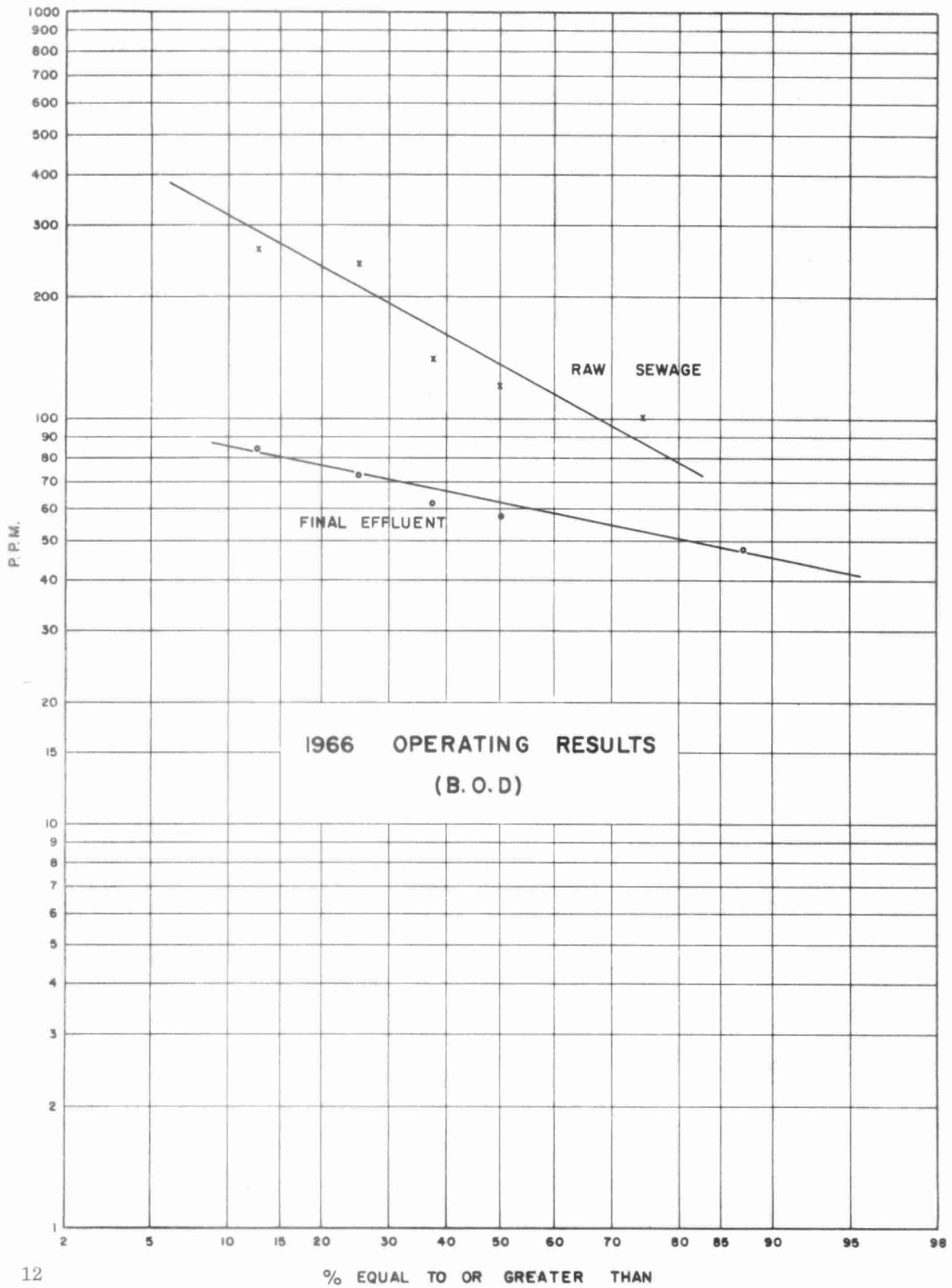
Process Data

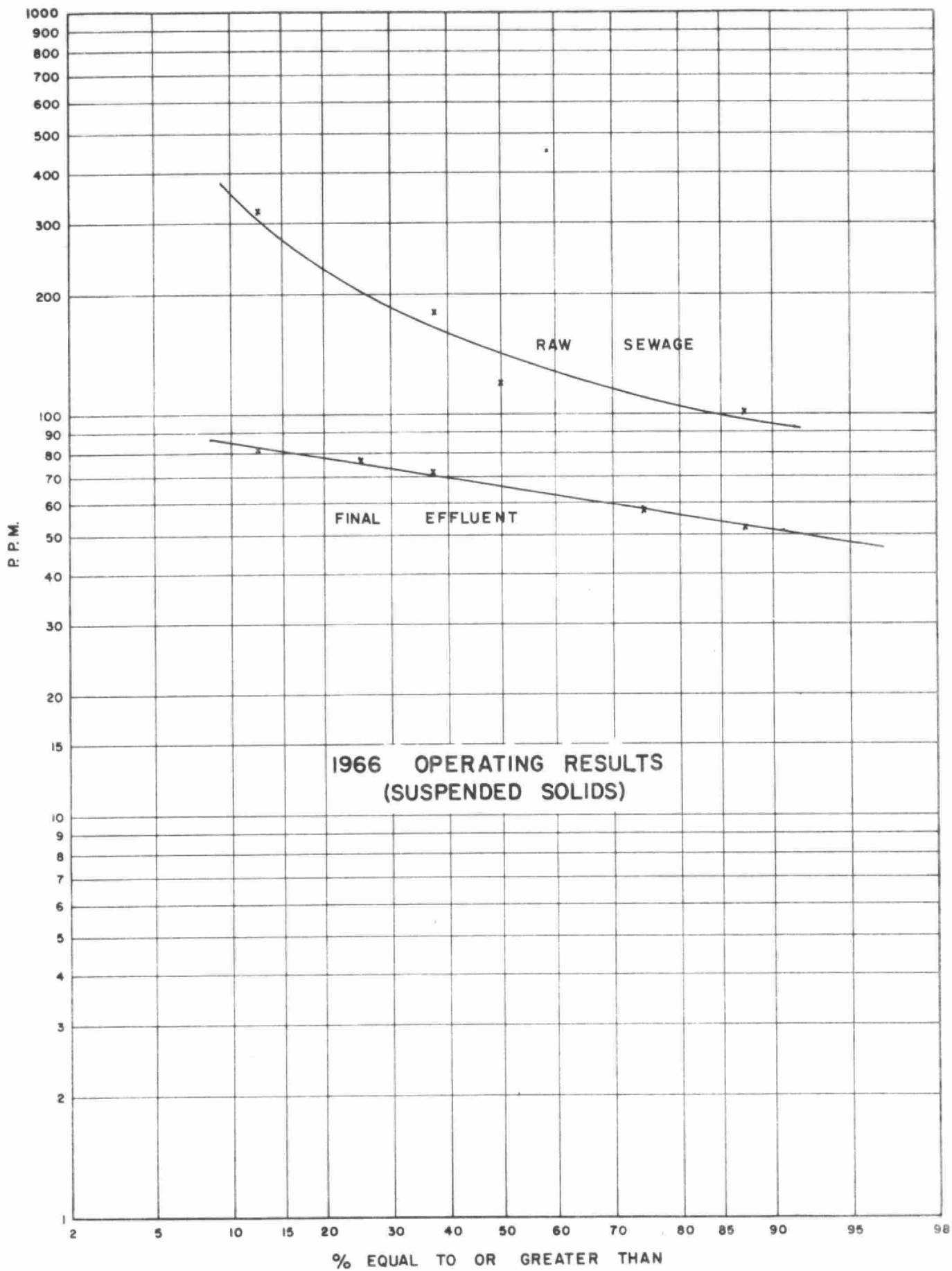
This was the first complete year that flow records were taken at the plant and, as such, the flows cannot be compared with those of previous years. A total of 367,780 gallons was treated during the year, for an average daily flow of 1,010,000 gallons.

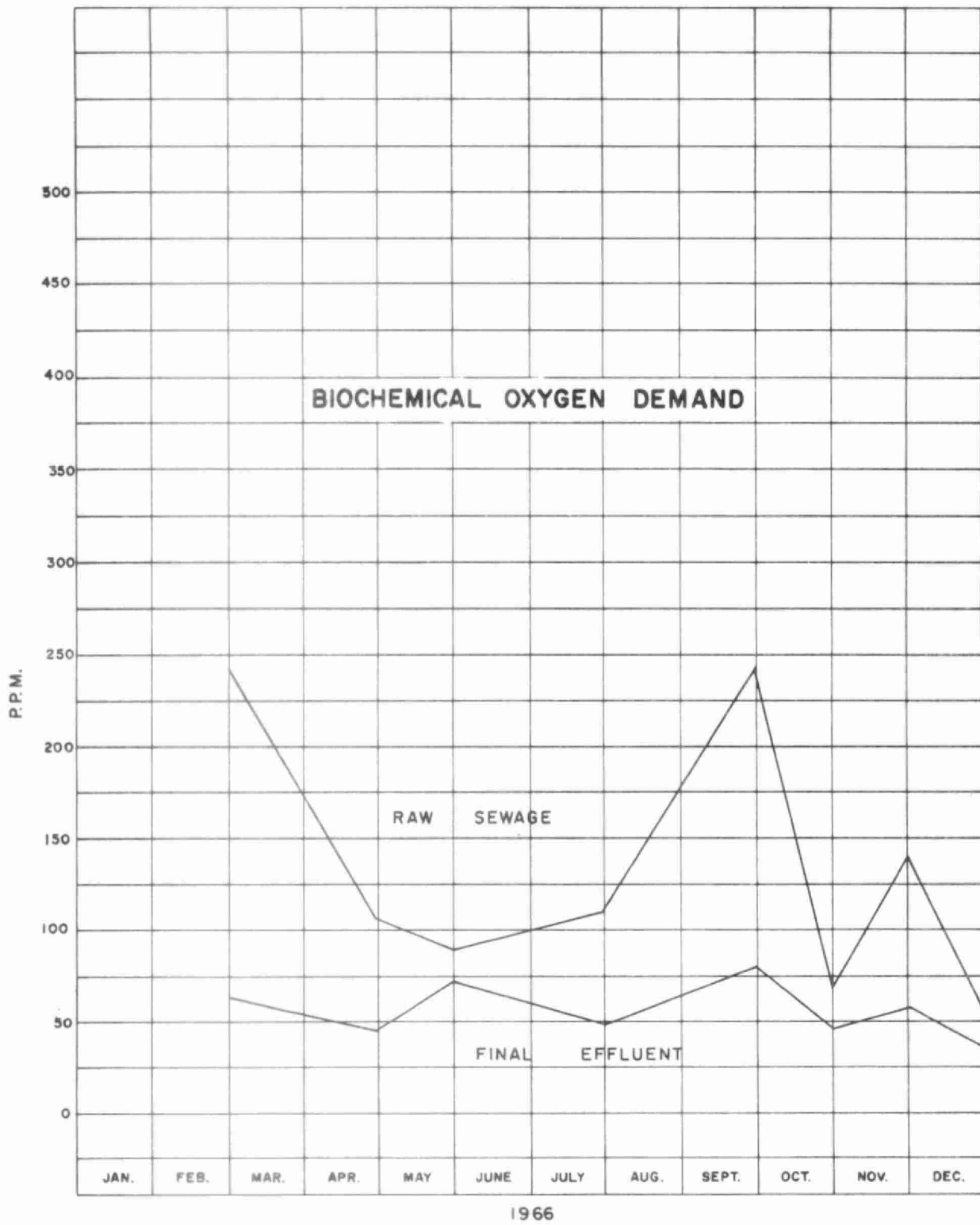
From the probability of flows curve, it can be seen that the flows to the plant exceeded the average design plant flow (1.25 mgd) approximately 20 percent of the time. However, the plant is capable of treating flows up to 5 mgd (4 DWF).

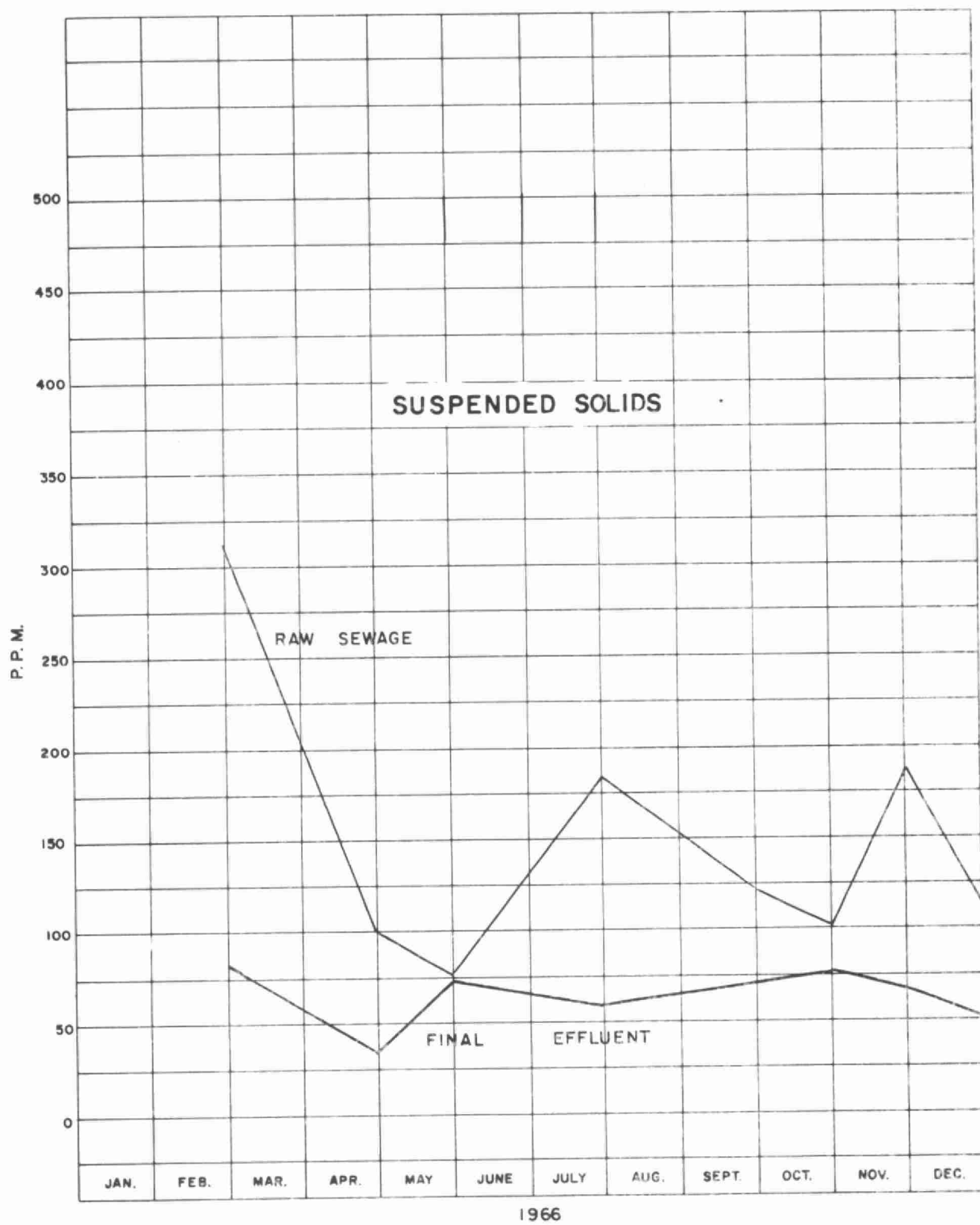












GRIT, B.O.D AND S.S. REMOVAL

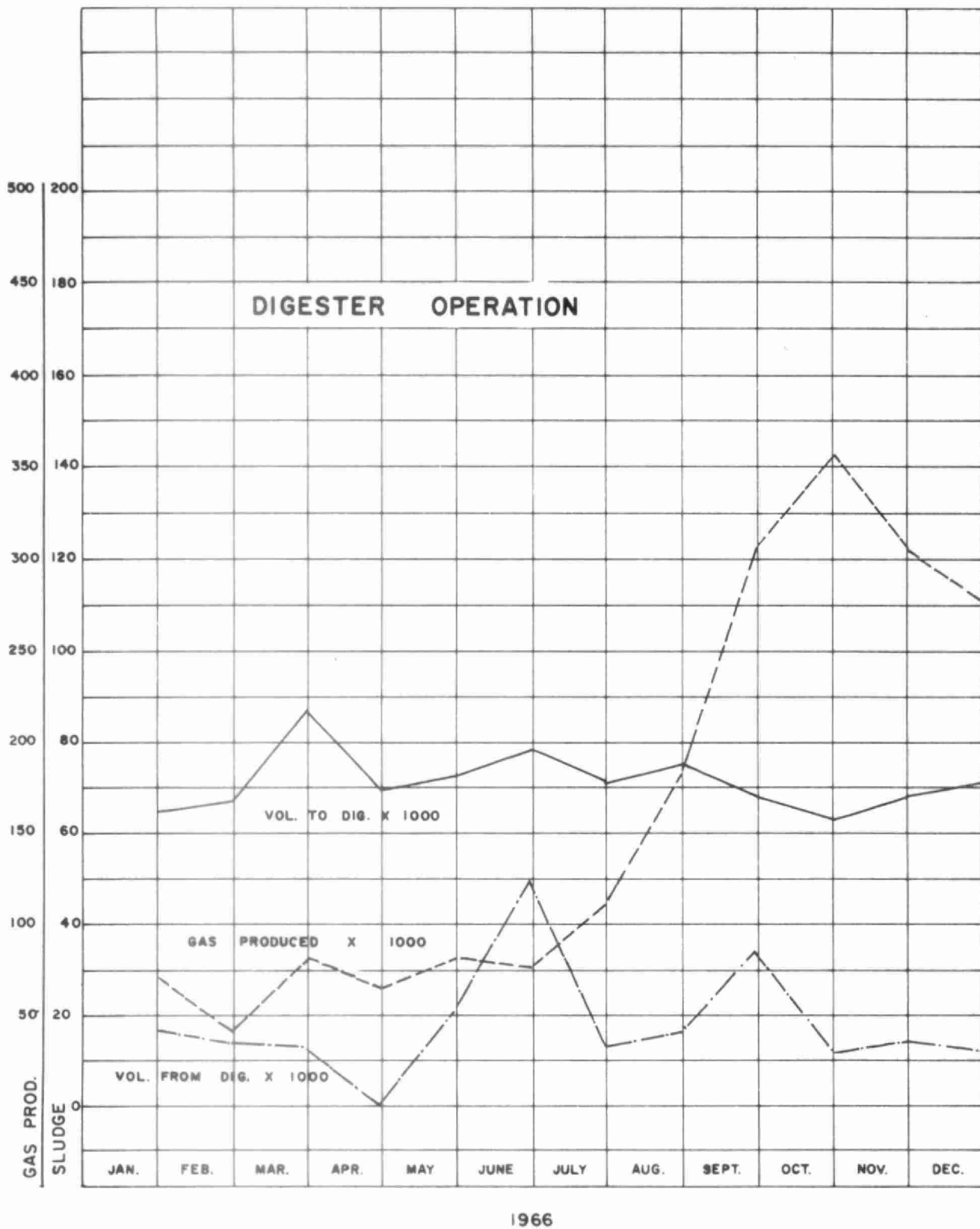
MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	* 133	56	58.0	7.2	* 149	64	57.0	7.9	64.5
FEB.	250	64	74.5	19.3	316	83	73.5	24.1	250.0
MAR.	* 133	56	58.0	13.3	* 149	64	57.0	14.7	370.0
APR.	106	46	56.5	10.8	100	34	66.0	11.9	107.5
MAY	90	72	20.0	2.8	76	72	5.5	0.6	62.5
JUNE	* 133	56	58.0	12.2	* 149	64	57.0	13.5	145.0
JULY	110	49	55.5	8.2	184	58	68.5	16.9	55.0
AUG.	* 133	56	58.0	12.1	* 149	64	57.0	13.3	130.0
SEPT.	245	80	67.5	20.9	120	69	42.5	6.4	135.0
OCT.	66	46	30.5	3.3	100	76	24.0	3.9	67.5
NOV.	140	58	58.5	15.2	186	66	64.5	22.2	65.0
DEC.	56	35	37.5	4.4	108	50	53.5	12.1	87.5
TOTAL	-	-	-	141.6	-	-	-	156.3	1539.5
AVG.	133	56	58.0	11.8	149	64	57.0	13.0	128.3

* Average values substituted, no samples.

COMMENTS

The average influent BOD was 133 ppm and the SS concentration was 149 ppm during the year. The average final effluent BOD was 56 ppm and the SS concentration was 64 ppm indicating reductions of 58 percent and 57 percent respectively. These reductions are in the range normally expected in the primary treatment plants.

A total of 1593.5 cubic feet of grit was removed, for an average of 4.3 cubic feet of grit removed per million gallons treated.



DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	
JAN.	10.35	-	-	2.75	-	-	72.77
FEB.	10.69	-	-	2.24	-	-	45.13
MAR.	13.97	-	-	2.14	-	-	80.69
APR.	11.07	-	-	-	-	-	64.75
MAY	11.49	-	-	3.40	-	-	81.24
JUNE	12.57	-	-	7.94	-	-	76.01
JULY	11.35	-	-	2.10	-	-	111.42
AUG.	12.08	-	-	2.59	-	-	182.00
SEPT.	10.88	-	-	5.51	-	-	306.50
OCT.	10.17	-	-	1.94	-	-	354.61
NOV.	10.96	-	-	2.27	-	-	300.87
DEC.	11.39	-	-	1.94	-	-	275.15
TOTAL	136.97	-	-	34.82	-	-	1951.14
AVG.	11.41	-	-	2.90	-	-	162.60

COMMENTS

A total of 136,970 cubic feet of raw sludge was pumped to the digesters and a total of 34,820 cubic feet of digested sludge was removed by tank truck for disposal from the digesters.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	18.63	-	-
FEBRUARY	20.72	-	-
MARCH	34.67	-	-
APRIL	36.09	-	-
MAY	30.56	* 1060	6.32
JUNE	31.68	2030	6.41
JULY	26.87	2410	8.97
AUGUST	31.37	2750	8.77
SEPTEMBER	25.33	2630	10.38
OCTOBER	32.89	2660	8.09
NOVEMBER	37.08	-	-
DECEMBER	41.89	-	-
TOTAL	367.78	13540	-
AVERAGE	30.65	2257	8.21

* 17 DAYS' CHLORINATION

COMMENTS

Chlorination of the final effluent was started on May 15 and carried on until the end of October. A total of 13,540 lbs. of chlorine were used and the average dosage was 8.21 ppm.

LABORATORY LIBRARY



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CONCLUSIONS

The plant was well maintained and operated by the staff and a satisfactory treatment was provided by the plant during the year.

